

Appendix C

Methodology of the Active Travel Evidence Collection

Evidence Collections for Climate and Health

June 2024

Authors

Rebecca Newbould, Rachel Juel, Aparna Dasaraju, Sarah Whitmee, Robert Hughes

London School of Hygiene and Tropical Medicine

LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE



Climate Change
& Planetary
Health

NIHR | Public Health
Policy Research Unit

Table of Contents

	1
Introduction	3
<i>Background</i>	3
<i>Focus on policy relevant evidence on active travel</i>	3
<i>Research aim</i>	3
Methods	4
<i>Process to identify rapid review questions</i>	4
Prioritisation of research direction: finding and selecting active travel policies.	4
Grounding the research in stakeholder participation.	5
Using the Climate Assembly UK within policy prioritisation.	5
Prioritising evidence gaps and creating research questions through Stakeholder Engagement	5
Consolidating stakeholder identified evidence gaps into review questions.	6
Finalised questions for the rapid reviews	6
<i>Rapid review methods</i>	6
Eligibility and Inclusion Criteria	6
Information sources and search strategy	7
Selection process	10
Data extraction and synthesis	10
Quality Appraisal	10
References	11
Sub Appendix	13
<i>Sub Appendix C1: UK policy documents consulted for initial policy scoping.</i>	13
<i>Sub Appendix C2: Stakeholder Workshop Summary.</i>	14
<i>Sub Appendix C3: Active Travel Policy Longlist</i>	22

Link to the [Evidence Collections for Climate and Health Final Report](#)

Funding



This project is funded by the NIHR Public Health Policy Research Unit (PH-PRU) (PR-PRU-1217-2090). The PH-PRU is commissioned and funded by the National Institute for Health and Social Care Research (NIHR) Policy Research Programme. The views expressed in this report are those of the authors and not necessarily those of the NHS, the National Institute for Health and Social Care Research, the Department of Health and Social Care or its arm's length bodies, and other Government Departments.

Introduction

Background

This Active Travel Evidence Collection is a part of the [Evidence Collections for Climate and Health](#) project at the London School of Hygiene and Tropical Medicine's Centre for Climate Change and Planetary Health. This project seeks to identify evidence that may produce positive outcomes for both people and the planet. Specifically, the project resulted in two thematic evidence collections: one on sustainable diets and one on active travel. These evidence collections are open access for those seeking evidence on policies or interventions to shift diets and transport modes towards being more healthy and sustainable.

This Active Travel Evidence Collection focuses on evidence to support a modal shift towards active travel. The Collection is formed of three rapid reviews. This report describes the methodology behind the rapid reviews.

Focus on policy relevant evidence on active travel

Policy is a particularly important lever for achieving modal shift towards active travel. Increasing active travel will require systematic behaviour change. The OCED Transport Strategies for Net Zero Systems by Design report ¹ discusses how individual behaviour patterns and preferences arise from the existing system structure around them and the mental models that have shaped that structure. Active travel policies provide an opportunity to change the system-wide structure and thus shape broader behaviour change. Transformative active travel policies can make active travel choices feasible and attractive for most of the population and shape their preferences towards sustainable modes of transport².

The Pathfinder Initiative report states “achievements of climate and health benefits require systemic changes that combine increased use of public transport and active travel with reduced private car use”³. To ensure we captured a policy landscape that had the largest climate and health impacts while achieving modal shift, we considered both ‘push’ and ‘pull’ active travel policies. ‘Push’ (or ‘stick’) policies are those interventions or policies that produce losses (e.g decrease space or convenience, such as a parking levy policy) in order to promote modal shift. ‘Pull’ (or ‘carrot’) policies are those policies and interventions that produce gains in functions (e.g increase access or safety, such as a cycle to work scheme)⁴. Some interventions or policies can be both ‘push’ and ‘pull’, for example the removal of on street parking (push) for a new bike line (pull).

Within the UK, transport is the responsibility of the devolved governments⁵. Each devolved government creates their own strategy for active travel at a national level and allocates its own central funding towards active travel. Despite the overarching visions from national level government, most active travel interventions are implemented at local government level in the UK⁶. As most of the effective action on active travel in the UK takes place at the local authority level, it is important to address modal shift at a local authority level.

Research aim

This project aimed to create a focused evidence collection on active travel that is relevant to UK policymakers. It addresses current gaps in evidence, as determined by those involved in the field of active travel, to help inform, primarily locally led efforts, to promote modal shift.

Achieving modal shift will require policy input by local authorities. We decided that the best way to support policy makers was through evidence synthesis in the form of several policy-focused rapid evidence reviews filling current evidence gaps, as determined by UK policy users.

Methods

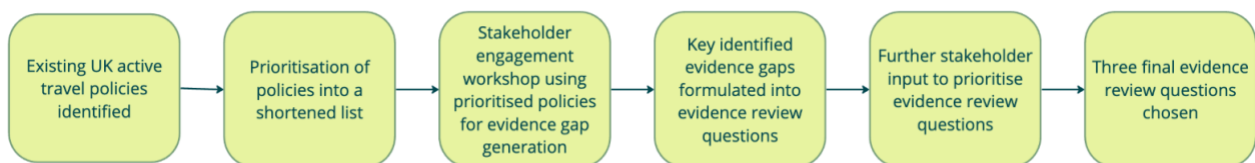
For this project, we defined active travel as encompassing walking, cycling, wheeling, and the use of public transport for transportation purposes. This definition acknowledges that using public transport often incorporates elements of active travel, such as walking or cycling, and it therefore increases users' daily physical activity^{7, 8}.

The following methods section is broken up into two parts. Firstly, the process used identify the research questions is described and secondly, to describe the rapid review methodology.

Process to identify rapid review questions

The process followed to identify the three evidence review questions is shown in [Figure 1](#) and discussed below.

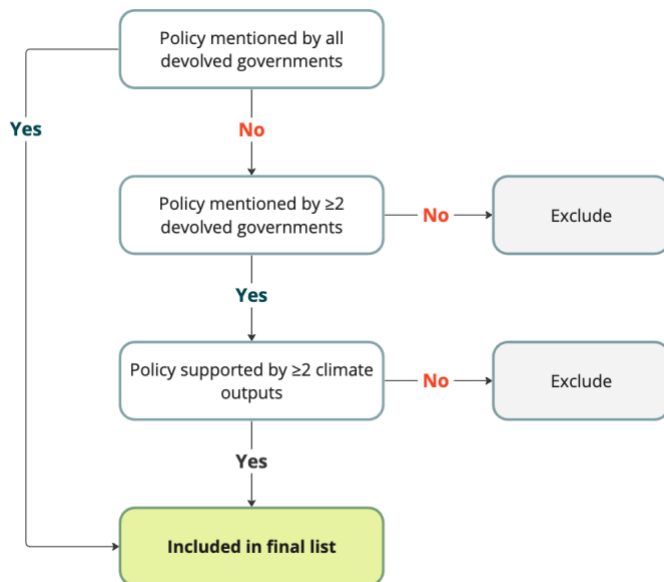
Figure 1: Process to identify review questions.



Prioritisation of research direction: finding and selecting active travel policies.

To identify where evidence would best support a shift towards active travel within the UK, we gathered current and past UK policies that could support modal shift towards active travel. Policies were taken from devolved government policy and strategy documents ([Sub-Appendix C1](#)) and compiled into a longlist of over 75 different policies ([Sub-Appendix C3](#)). To focus the list on policies that would have the largest climate relevance, a shortlist of 21 policies ([Sub-Appendix Figure C 1](#)) was developed by cross referencing policies with Climate Change Committee (CCC) reports⁹⁻¹¹, the Intergovernmental Panel on Climate Change (IPCC) recommendations^{12, 13} and Climate Assembly UK outputs¹⁴. Policies that were touched on by all four devolved governments but not specifically mentioned by climate organisations were included, as these were deemed to be of importance to a UK context. For a policy to reach the shortlist it had to be mentioned by all four devolved governments, or by at least two devolved governments and two climate reports ([Figure 2](#)).

Figure 2: Decision tree for inclusion in the policy shortlist.



Grounding the research in stakeholder participation.

A participatory research approach was taken to guide the direction of the research. The input of both end users of active travel policy and policy users were used to facilitate this process. This was done through using the outputs from the UK Citizen’s Assembly to help prioritise the policy shortlist (described above) and our own stakeholder engagement to help prioritise research evidence gaps and create research questions.

Using the Climate Assembly UK within policy prioritisation.

We wanted to ensure that the end users of active travel policy were considered in the research process. Instead of attempting to gather a sample of end users for a stakeholder engagement, the results from the Citizen’s Assembly UK (CA) were used. The CA was chosen in the place of hosting a separate stakeholder engagement with members of the public as it was an extremely comprehensive engagement and much better than any engagement that would have been possible under this project’s scope. It gathered a large and representative population of 108 citizens from across the UK to participate in discussions about the choices the UK faces in relation to Net Zero. They were randomly selected to be representative of the UK population in terms of age, gender, ethnicity, education, geography and climate change views¹⁴. The CA members discussed transport and voted on their support for different policies relating to decarbonising transport. The results of their votes were used to help prioritise which policies should be included in the final list for the policy user stakeholder engagement workshop, as discussed above.

Prioritising evidence gaps and creating research questions through Stakeholder Engagement.

After suitable policies were identified, policy user stakeholders were gathered from across the UK to attend a policy prioritisation and engagement workshop. To achieve a representative spread of stakeholders across where active travel policy decisions are made, stakeholders from multiple disciplines and various levels of government were invited.

Active travel capability varies across local authorities within the UK. The 2023 active travel capability rankings by ATE were used to identify and invite local and regional authorities with different levels of active travel capabilities, ranging from low (0) to high (3)¹⁵. We also aimed have a geographical spread and include both urban and rural local authorities. The complete list of organisations included can be found in Sub Appendix C2; it included transport and health policy

representatives from three different regional authorities and two local authorities, a former Director of Public Health, relevant advocacy groups and devolved government representatives. Thirteen participants contributed to the stakeholder workshop; additional participants unable to attend the workshop date offered to complete a follow-up exercise.

The stakeholder workshop was run online to allow participants from across the country to participate. A Miro whiteboard was used to facilitate interaction by participants. Participants were asked to complete three main tasks: 1) create a prioritisation matrix of our policy shortlist, 2) identify key barriers and enablers of action at a local level, 3) generate their own evidence questions based on where they thought the gaps in evidence lay. Further details on the workshop and its outputs can be found in [Sub-Appendix C2](#).

Consolidating stakeholder identified evidence gaps into review questions.

Using the outputs from the stakeholder workshop, we prioritised suggested evidence gaps into a shortlist of ten potential questions for the rapid reviews. Only evidence gaps we could address within the scope of a rapid review were included in the shortlist. The shortlist was sent out to all stakeholders invited to the workshop (not only those who attended) with a request to rank the questions by order of highest to lowest priority. Following the question ranking, further consultation identified that some of the questions on our review list were already being explored through OHID commissioned reviews (best metrics to assess modal shift/active travel interventions, if/how different socioeconomic groups are affected by active travel interventions, what measures that have been successful in supporting lower socio-demographic groups to uptake active travel); after excluding these, we focused on the next highest priority questions on our list.

Finalised questions for the rapid reviews

1. What framing should Local Authorities use when discussing ‘push’ interventions to promote modal shift away from car use to active travel (such as road user charges, vehicle emission zones, re-prioritisation of parking spaces) to effectively communicate with the public?
2. What are the local economic impacts of active travel interventions or shifts to active travel? (including what is the local economic spend of car users versus active travel users in the UK?)
3. Does emphasising active travel in planning policy result in increased active travel?

Rapid review methods

These reviews were completed using light touch, AI supported methods over a condensed time frame and as such are rapid summaries of the evidence for each question.

Eligibility and Inclusion Criteria

Review 1: The aim of this review was to identify the best way to frame modal shift ‘push’ policies (car-use demand policies) for Local Authorities to effectively communicate with the public.

Review 2: The aim of this review was to identify the local economic impacts of active travel interventions or modal shifts towards active travel. It included a secondary aim of identifying how much motor-vehicle drivers spend compared to those travelling by active travel transport.

Review 3: The aim of this review was to examine if specifically referencing and emphasising active travel in planning policy increased travel by active transport methods.

The PICOS framework was used to define the objectives for each review (Table 1). However, as there was limited literature on some topics, not all papers discussed in the final reviews met the PICO criteria. As active travel interventions and policies are often evaluated by government departments or think-tanks on behalf of government, grey literature was included in all three reviews.

Table 1: Population, Inclusion, Comparison, Outcome criteria for reviews

	Review 1 - Framing	Review 2 - Economic	Review 3 - Planning
Population	General population, but with a focus on UK.	General population, but with a focus on UK.	General population
Intervention	Framing of car-use demand management policies.	Any active travel intervention or Assessments of impacts of modal shift to active travel.	Referencing or emphasising active travel in planning policies (including transport planning, city/town planning & urban planning).
Comparison	Any	Business as usual or comparison area	None/any
Outcome	Effective communication with public (i.e public understanding and awareness).	Any economic impacts at a local level including: customer spending (including motor users vs active travel users), footfall, customer numbers, business sales, property values, employment, health economic impact (NHS).	Impact on any form of active transport.
Study	All study designs. Grey literature included. All years included. Only studies in English language included.	All study designs but focus on quantitative studies. Grey literature included. All years included. Only studies in English included.	All study designs. Grey literature included. All years included. Only studies in English included.

Information sources and search strategy

These reviews employed AI-powered literature search tools to accelerate and target the search process. The aim of using these methods instead of traditional search strategy was to get more targeted search across the different disciplines that the review questions covered. Elicit AI¹⁶, Consensus AI¹⁷ and Google Scholar were used for the main search, while Scite AI¹⁸ was used for adjunct citation searching (as Elicit includes some citation searching). All three AI tools use Semantic Scholar to source their database¹⁸⁻²⁰. Due to the novel nature of the search methods, the way the searches were run differed slightly between each review. For all Elicit AI and Consensus AI searches, new reports were retrieved until there were five consecutive searches that did not return any relevant report. For Elicit AI searches, the ‘more like these’ tool was used to generate papers during some searches. This tool utilises forward and backward citation searching of selected papers to retrieve papers. In order to ensure that the AI tools were retrieving the most recent literature, filters were placed on some searches to limit papers to certain time periods. The details of each search strategy can be found in **Error! Reference source not found.**

Scite AI was also used for forward and backward citation searching for some relevant papers. For Google Scholar searches, we screened a minimum of 100 references each, after this point references were screened until two consecutive pages (20 references) returned no valid papers. Searches were completed during February & March 2024, and completed by one reviewer.

Table 2: Search strategies for Reviews 1, 2 & 3

	Review 1 – Framing of modal shift ‘push’ policies	Review 2 – Local economic impacts of active travel	Review 3 – Active travel in planning policy
Elicit	<p>“What framing should Local Authorities use when discussing disincentives on car use (e.g road user charges, vehicle emission zones, re-prioritisation of parking spaces) to effectively communicate with the public?”</p> <p>48 papers extracted</p>	<p>“What are the local economic impacts of active travel interventions or shifts to active travel? (including what is the local economic spend of car users vs active travel users in the UK)”</p> <p>152 papers extracted</p>	<p>“Do references to promoting active travel in planning policy result in an increase in active travel?”</p> <p>48 papers extracted</p>
	<p>Limit to past 15 years, then ‘more like these’ used on relevant papers</p> <p>88 papers extracted</p>	<p>Limit to past 20 years, then ‘more like these’ tool used on relevant papers</p> <p>48 papers extracted</p>	<p>Refinement of question to include “urban planning policies”, then ‘more papers like these tool’ used on relevant papers</p> <p>50 papers extracted</p>
	<p>“What framing should Local Authorities use when discussing disincentives on car use (road user charges, vehicle emission zones, re-prioritisation of parking spaces, limited access zones, workplace parking levies) to effectively communicate with the public?” limit to past 10y</p> <p>56 papers extracted</p>	<p>“What is the footfall spend of those who travel actively, walking, cycling and public transport in the UK, England, Scotland, Wales or Northern Ireland?”</p> <p>104 papers extracted</p>	
	<p>“UK Local Authorities” added to question, filtered to past 10 years</p> <p>48 papers extracted</p>	<p>“What is the local economic spend of car users vs active travel users in the UK?”</p> <p>“What is the local economic and footfall spend of car users versus active travel users in the UK?”, then ‘more like these’ tool</p> <p>112 papers extracted</p>	
		<p>“What are the local economic impacts of active travel interventions or shifts to active travel?”, then ‘more like these’ tool</p> <p>104 papers extracted</p>	
	<p>Duplicates identified using Rayyan and resolved manually</p>	<p>Duplicates identified using Rayyan and resolved manually</p>	<p>Duplicates identified using Rayyan and resolved manually</p>
	<p>161 total unique references</p>	<p>212 total unique references</p>	<p>69 total unique references</p>

Consensus	“What framing should Local Authorities use when discussing disincentives on car use (road user charges, vehicle emission zones, re-prioritisation of parking spaces, limited access zones, workplace parking levies) to effectively communicate with the public?” 58 papers extracted	“What are the local economic impacts of active travel interventions or shifts to active travel (including what is the local economic spend of car users vs active travel users in the UK)” 153 papers extracted	“Do references to promoting active travel in planning policy result in increased active travel?” 50 papers extracted
	“What framing should Local Authorities use when discussing disincentives on car use to effectively communicate with the public?” 29 papers extracted	“What are the local economic impacts of more walking, cycling and public transport, sustainable mobility” 89 papers extracted	
		“What is the local economic or footfall spend of car users vs active travel, walking, cycling, public transport or sustainable mobility users in the UK, England, Scotland, Wales or Northern Ireland?” 99 papers extracted	
		Limit to past 10 years 50 papers extracted	
	Duplicates identified using Rayyan and resolved manually	Duplicates identified using EPPI Reviewer and resolved automatically	
	87 total unique references	262 total unique references	50 total unique references
Google Scholar	(“communication” OR “understanding” OR “public messaging”) AND (frame OR framing) AND (“car disincentives” OR “road user charge” OR “emission zone” OR “parking levy” OR “parking charge” OR “limited access zone” OR “congestion charge”) AND (“local authority” OR “council” OR “municipal” OR “borough”) “What framing should Local Authorities use when discussing disincentives on car use (road user charges, vehicle emission zones, re-prioritisation of parking spaces, limited access zones, workplace parking levies) to effectively communicate with the public?”	“local economic impacts of active travel interventions and modal shift walking cycling public transportation United Kingdom, UK, England, Wales, Scotland, Northern Ireland” “local economic impacts benefit negative AND active travel interventions or shifts walking cycling public transportation” “What are the local economic impacts of active travel interventions or shifts to active travel” “what is the local economic spend of car users versus active travel users in the UK” “local economic impacts benefits negative of active modal shift walking cycling public transportation” (plus one DfT focussed direct Google search)	(“active travel” OR “walking” OR “cycling” OR “public transport”) AND (“planning policy” OR “planning”) AND (impact OR effectiveness OR outcomes OR increase OR decrease) “Do references to promoting active travel in planning policy result in increased active travel?”
	4 additional papers	13 additional papers	8 additional papers
Citation Searching	8 additional papers (write up only)	2 additional papers	7 additional papers
Total	260	443	130

Selection process

Each record was assessed by one reviewer. Review 1 and 3 used Rayyan literature screening software²¹ to automatically identify duplicates which were then resolved manually. Screening for Review 1 and 3 was also completed using Rayyan software. For duplicate identification Review 2 used both Rayyan software (automatic identification and manual resolution) and EPPI reviewer software²² (automatic identification and resolution). Review 2 used EPPI reviewer software for screening.

A note on duplicate resolution:
As multiple searches were run in both Elicit and Consensus, these searches generated duplicates within the papers extracted from each source. Duplicates were identified in two stages:
Step 1) duplicates resolved among papers extracted from each source individually;
Step 2) Unique references from sources were combined and duplicates resolved.

All inclusion decisions were made manually. Full text screening was performed alongside title and abstract screening. References were screened for title and abstract, and if deemed possibly eligible the full text was sourced, and the decision was made for inclusion or exclusion.

Data extraction and synthesis

Extraction of relevant key points from the literature was done by one reviewer (RN). For Reviews 2 and 3, this was done manually with Elicit AI support. Elicit AI was used to extract data from the papers full text into a table. A separate table was completed manually, pulling information from the Elicit table then checking with full text and adding extra details. Extraction of information for Review 1 was done manually only. Narrative evidence synthesis was completed manually for all reviews. Reviews were written aimed at a policy audience. Gemini AI²³ was used to assist with the write-up of summaries and to proofread and refine written text.

Quality Appraisal

Review 1: Due to the mixed studies identified for this review, quality assessment was done using the 2018 Mixed Methods Appraisal Tool (MMAT)²⁴. The four most relevant studies were quality assessed using the MMAT. Quality and risk of bias of the remaining studies mentioned was considered but not formally assessed.

Review 2: Quality assessment was not formally completed for this review due to the amount and diversity of studies found. Study quality and risk of bias was instead informally considered.

Review 3: Due to the mixed studies and papers identified for this review, quality assessment was done using the 2018 MMAT²⁴ and the Health Evidence Quality Assessment Tool^{25,26}. Quality assessment of the two most relevant studies employed the MMAT 2018 tool and Health Evidence Tool. For the remaining literature referenced, quality was considered (including study design) but not formally assessed.

References

1. OECD. Transport Strategies for Net-Zero Systems by Design 2021.
2. OECD. Redesigning Ireland's Transport for Net Zero 2022.
3. Whitmee S, Green R, Belesova K, Hassan S, Cuevas S, Murage P, et al. Pathways to a healthy net-zero future: report of the Lancet Pathfinder Commission. *The Lancet*. 2024;403(10421):67-110.
4. Xiao C, Sluijs EV, Ogilvie D, Patterson R, Panter J. Shifting towards healthier transport: carrots or sticks? Systematic review and meta-analysis of population-level interventions. *The Lancet Planetary Health*. 2022;6(11):e858-e69.
5. Butcher L. Transport in Scotland, Wales & Northern Ireland. In: House of C, editor. 2017.
6. Committee of Public Accounts. Active travel in England: Seventy-Fifth Report of Session 2022–23. In: House of Commons, editor.: House of Commons; 2023.
7. Patterson R, Webb E, Millett C, Lavery AA. Physical activity accrued as part of public transport use in England. *Journal of public health*. 2019;41(2):222-30.
8. Rissel C, Curac N, Greenaway M, Bauman A. Physical Activity Associated with Public Transport Use—A Review and Modelling of Potential Benefits. *International Journal of Environmental Research and Public Health*. 2012;9(7):2454-78.
9. Climate Change Committee. The Sixth Carbon Budget Surface Transport. 2020. Available from: <https://www.theccc.org.uk/wp-content/uploads/2020/12/Sector-summary-Surface-transport.pdf>.
10. Committee on Climate Change. Net Zero - Technical Report. 2019. Available from: <https://www.theccc.org.uk/publication/net-zero-technical-report/>.
11. WSP for Climate Change Committee. Understanding the Requirements and Barriers for Modal Shift. Climate Change Committee: Climate Change Committee; 2023. Available from: <https://www.theccc.org.uk/wp-content/uploads/2023/06/Understanding-the-requirements-and-barriers-for-modal-shift-WSP.pdf>.
12. Jaramillo P, Kahn Ribeiro S, Newman P, Dhar S, Diemuodeke OE, Kajino T, et al. Transport. In: Shukla PR, Skea J, Slade R, Al Khourdajie A, van Diemen R, McCollum D, et al., editors. *Climate Change 2022: Mitigation of Climate Change Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, UK and New York, NY, USA: Cambridge University Press; 2022.
13. Lwasa S, Seto KC, Bai X, Blanco H, Gurney KR, Kılış Ş, et al. Urban Systems and Other Settlements. In: Shukla PR, Skea J, Slade R, Al Khourdajie A, van Diemen R, McCollum D, et al., editors. *Climate Change 2022: Mitigation of Climate Change Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge, UK and New York, NY, USA: Cambridge University Press; 2022.
14. Climate Assembly UK. The path to net zero: Climate Assembly UK full report. 2020 10 Sep 2020. Available from: <https://www.climateassembly.uk/report/read/#preface>.
15. Active Travel England. Local authority active travel capability ratings 2023 [updated 10 Mar 2023; Accessed 25 Jan 2024]. Available from: <https://www.gov.uk/government/publications/local-authority-active-travel-capability-ratings/local-authority-active-travel-capability-ratings-accessible-version#local-authority-ratings>.
16. Elicit. Elicit: The AI Research Assistant 2024 [updated 3 Feb 2024; Accessed Feb/Mar 2024]. Available from: <https://elicit.com/>.
17. Consensus. Search - Consensus: AI Search Engine for Research: @ConsensusNLP; 2024 [updated 3 Feb 2024; Accessed Feb/Mar 2024]. Available from: <https://consensus.app/search/>.
18. scite. scite Search: @scite; 2024 [Accessed Feb/Mar 2024]. Available from: <https://scite.ai>.
19. Consensus. How it Works & Consensus FAQ's - Consensus: AI Search Engine for Research 2022 [updated 3 Aug 2022; Accessed 27 Mar 2024]. Available from: <https://consensus.app/blog/welcome-to-consensus/>.
20. Elicit Help Centre. Elicit's Source for Papers: Elicit; 2024 [Accessed 27 Mar 2024]. Available from: <https://support.elicit.com/en/articles/553025>.

21. Ouzzani M, Hammady H, Fedorowicz Z, Elmagarmid A. Rayyan—a web and mobile app for systematic reviews. *Systematic Reviews*. 2016;5(1):210.
22. Thomas J GS, Brunton J, Ghouze Z, O'Driscoll P, Bond M, Koryakina A EPPI-Reviewer: advanced software for systematic reviews, maps and evidence synthesis EPPI Centre, UCL Social Research Institute, University College London 2022 [Accessed 2023/2024]. Available from: <https://eppi.ioe.ac.uk/EPPIReviewer-Web/home>.
23. Gemini Team Google. Gemini Advanced (Model Gemini Ultra 1.0) 2024 [updated 15 Feb 2024; Accessed Feb/Mar 2024]. Available from: <https://gemini.google.com/app>.
24. Hong QN, Fàbregues S, Bartlett G, Boardman F, Cargo M, Dagenais P, et al. The Mixed Methods Appraisal Tool (MMAT) version 2018 for information professionals and researchers. *Education for Information*. 2018;34(4):285-91.
25. Dobbins M, Decorby K, Robeson P, Husson H, Tirilis D, Greco L. A knowledge management tool for public health: health-evidence.ca. *BMC public health*. 2010;10(1):496.
26. Health Evidence. Quality Assessment Tool Guidance Document. National Collaborating Centre for Methods and Tools; 2023. Available from: <https://thehealthevidence.org/documents/our-appraisal-tools/quality-assessment-tool-dictionary-en.pdf>.

Sub Appendix

Sub Appendix C1: UK policy documents consulted for initial policy scoping.

<i>UK policy documents consulted for initial policy scoping.</i>
England
<ul style="list-style-type: none">▪ Public Health England - Working Together to Promote Active Travel, 2016▪ Cycling and walking investment strategy (CWIS), 2017▪ Gear Change – a bold vision for cycling and walking, 2020▪ Decarbonising Transport – A Better, Greener Britain, 2021▪ Bus Back Better, 2021▪ Gear Change: one-year-on review, 2021▪ Decarbonising Transport: one-year-on review, 2022▪ The second cycling and walking investment strategy (CWIS2), 2023
Scotland
<ul style="list-style-type: none">▪ Cycling Action Plan for Scotland (CAPS) & updates, 2010, 2013, 2016▪ A Long-Term Vision for Active Travel in Scotland 2030, 2014▪ Let's Get Scotland Walking: the National Walking Strategy Action Plan 2016-2026, 2015, 2019▪ Climate Change Delivery Plan 2018-2032, 2017, 2020▪ Scotland's 4th National Planning Framework- Position Statement, 2018▪ National Transport Strategy, 2016▪ Independent Review of CAPS 2020, 2020▪ Infrastructure Investment Plan 2021, 2021▪ Strategic Transport Projects Review 2, 2022▪ Second National Transport Strategy, 2020▪ Cycling Framework for Active Travel - A plan for everyday cycling, 2023
Wales
<ul style="list-style-type: none">▪ Active Travel Act, 2013▪ Statutory Infrastructure Design Guidance, 2014▪ Llwybr Newydd – A New Wales Transport Strategy, 2015▪ Active Travel Act Guidance, 2021
Northern Ireland
<ul style="list-style-type: none">▪ 'Making Life Better 2012 – 2023' , 2014▪ Changing gear: A bicycle strategy for Northern Ireland, 2015▪ Exercise, Explore, Enjoy, 2016▪ Climate Change Act (Northern Ireland), 2022▪ Making Belfast an Active City – Belfast Cycling Network 2021, 2021▪ Belfast Cycling Network Delivery Plan 2022, 2022

Sub Appendix C2: Stakeholder Workshop Summary.

Participants

13 participants attended the workshop itself, with one further participant contributing to the workshop materials after the event.

These included representatives from:

- Local Authorities (3)
- Regional Authorities/Regional Transport Authorities (3)
- Charities & advocacy groups (3)
- Devolved governments (2)
- Public Health Units (3)

Policy prioritisation

Participants were asked to look over the list of prioritised policies (Figure C 1: List of prioritised policies.) and add any that they thought were missing from the list.

Additional policies that participants felt were missing from the prioritised list:

- Walking missing from behaviour change incentives.
- E-Scooters
- Lack of direct reference to schools
- As encouraging active travel to school has many benefits but ultimately it embeds active travel in the minds of children from a young age.
- Active travel social prescribing (e.g AT social prescribing pilot).

Three breakout rooms were used to divide participants, each group was given approximately 6 policies to sort onto the priority vs evidence matrix (Figure C 2). Participants were asked to consider:

1. How high or low priority each policy was.
 - This generated some discussion around in terms of who's priority (political priority, the priority of them as experts).
2. How strong the evidence supporting the policy was (high or low).
 - They were asked to consider this in terms of evidence constraining action.

The workshop then came back to together and participants were asked to rearrange the matrix with less items as high priority/high evidence (Figure C 1).

Results policy prioritisation matrix after final reshuffle

- Lower evidence, higher priority
 - Cycle training – does it deliver quick wins?
 - Promoting e-bike use and cycle share schemes
 - Smart and integrated ticketing
 - 20 mph speed limits
 - LEZ/congestion charging
 - Bus/rail stations better access for all
- Interesting: “planning policy: require active travel infrastructure” placed twice at opposite ends of the evidence spectrum – both above and below the priority line.

Figure C 1: List of prioritised policies.

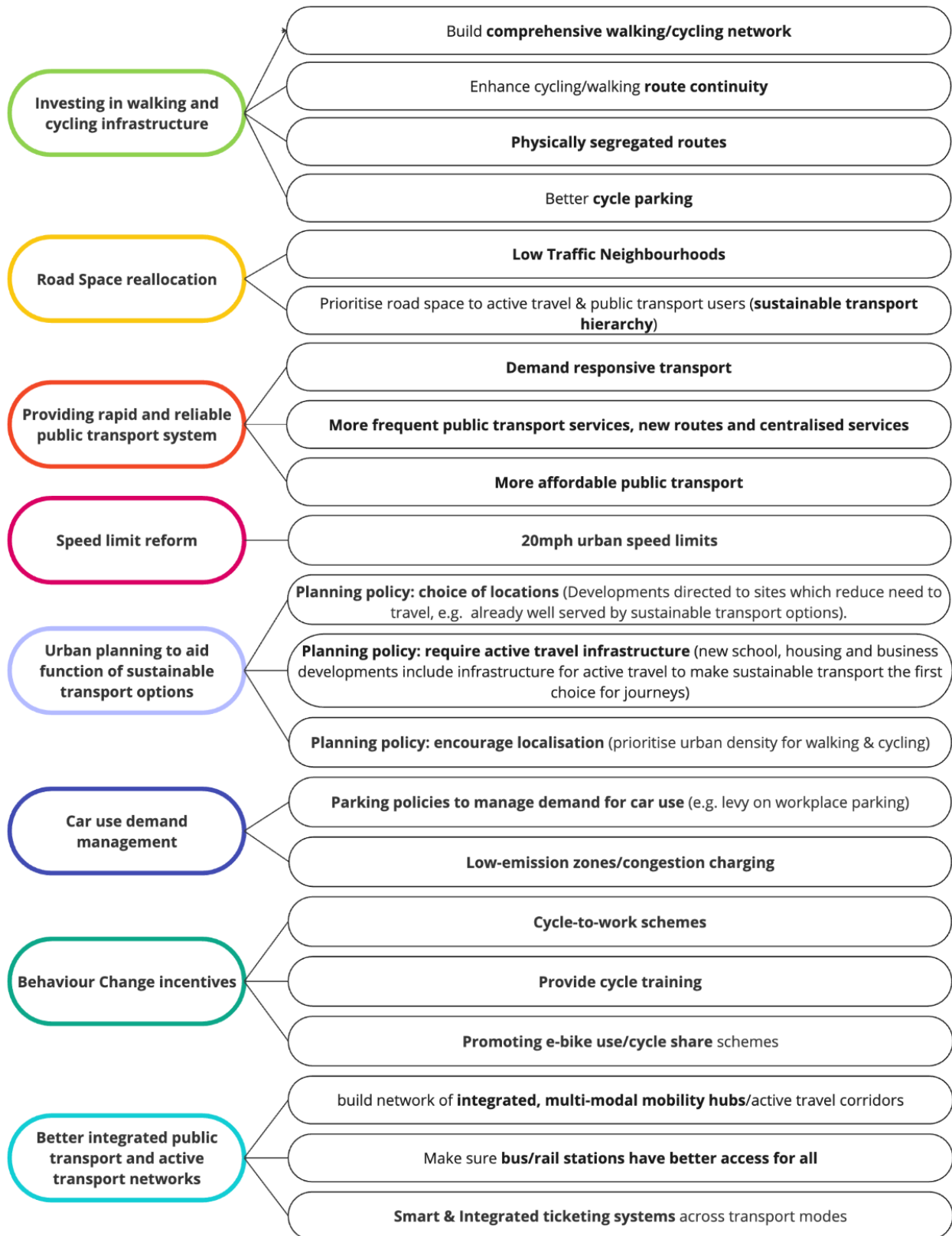
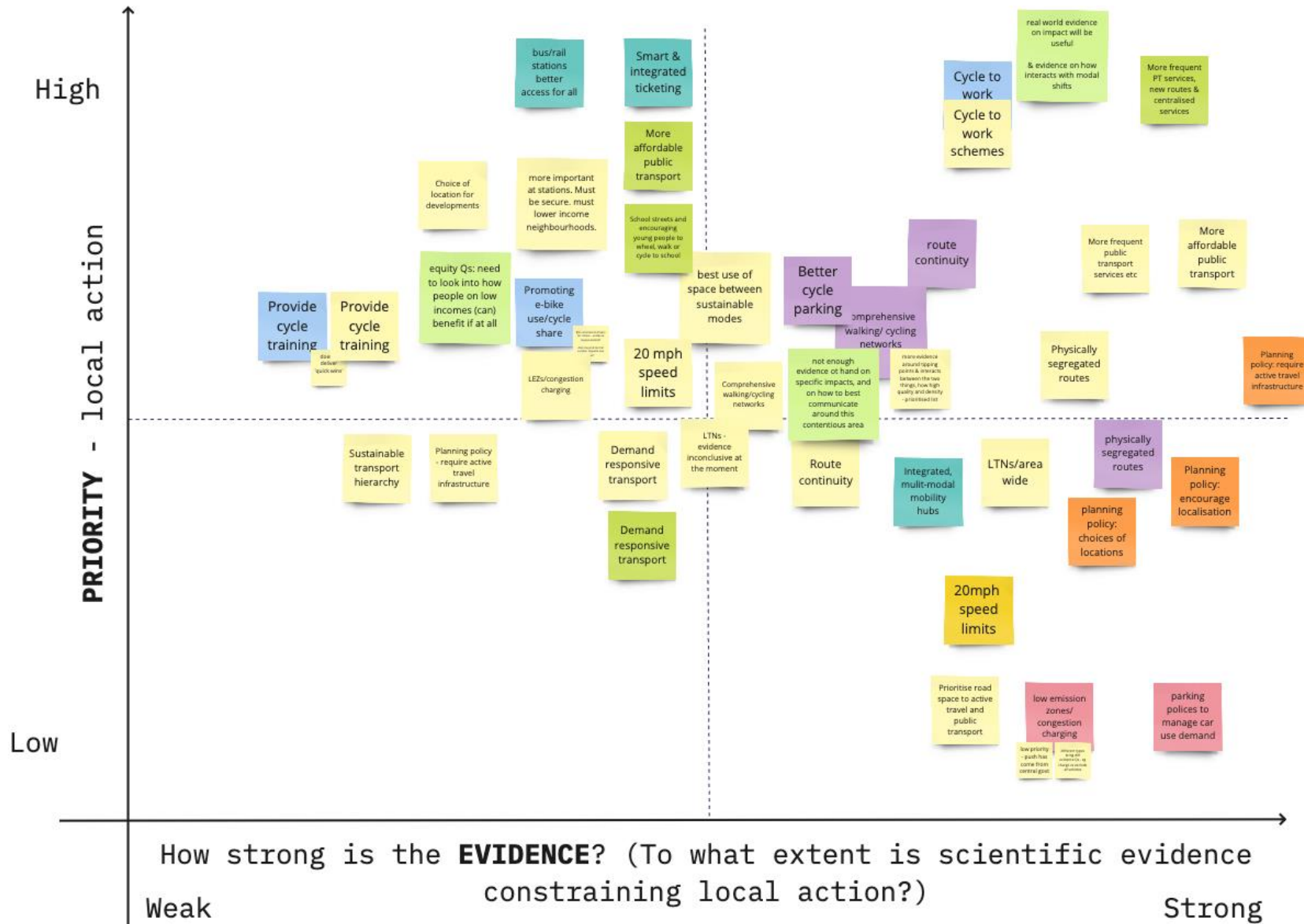


Figure C 2: Initial prioritisation matrix distribution after work in the breakout rooms.



Figure C 3: Prioritisation matrix after whole group discussion.



Constraints to action exercise

Question posed to participants: “Where do you think the main constraints to local action lie?”.

4 initial broad constraints given: Knowledge, money, politics, competing issues. Participants asked to add any constraints they thought were missing, these mostly fit under the 4 broad categories.

Final voting list & outcomes

- Politics (24)
 - (Perceived?) public opinion
 - Mis/dis information
 - Difference of views between different LA’s & different councillors
- Money (16)
 - Resources in Local Authorities
 - Timeline to spend funding – big issue as delays in bid decisions from DfT/Cabinet and deadlines don’t take this into account
- Competing issues (6)
- Knowledge (3)
 - Belief that modal shift is achievable.

Notes from the discussion

- Touched on politics, having a national political will but not local, or vice versa, will influence action.
- Issues around carbon action plans and the belief that e-cars are the solution to decarbonising transport. LA’s are not including active travel in their carbon action plans.

National, Regional or Local vote

Participants were asked to vote on the which level of government is driving local action most.

Voting results

1. Local Level (25)
2. National (18)
3. Regional (14)

Enablers of implementation exercise

Participants were asked to write down two enablers that they thought had the largest effect at local level implementation. These were then grouped into common themes.

Summary of key local level implementation enablers

1. Community engagement (9)
 - Public community consultation & engagement (to get buy-in)
 - Time to engaging with local population and understand priorities of different demographics.
 - Doing this for Local and regional strategies
 - Support/buy-in from community leaders.
 - Local campaign groups
 - Emotive local stories
 - School requests for action around schools
2. Funding (9)
 - Ringfenced funding
 - Clear and consistent standards on what is/ isn’t funded (ATE, National government)
 - Consistent funding from national government
 - Sufficient funding to implement Local Cycling and Walking Infrastructure Plans (LCWIP)
 - Capital and revenue resource coupled with local capacity and capability
 - Investment in pedestrian and cycling infrastructure.
3. Political support (7)
 - Strong political leadership/supportive politicians
 - Buy-in from local councillors
 - Support for officers and politicians (political, technical and moral)

4. Clear necessity/local issues (5)
 - Air pollution
 - Congestion
 - Safety
5. Joint action (3)
 - Joint collaboration between public health, transport, decarbonisation teams (2)
 - AT built into transport and health targets
6. Decarbonisation Targets (2)
 - Net Zero by 2030 Targets
 - Using LA carbon action plans - set SMART targets for active travel
7. Knowledge (2)
 - Evidence
 - People understanding e-cars not full solution.
8. COVID Response (2)

Evidence gap generation

Participants were asked to write down any evidence gaps they thought existed or any evidence questions that they had, in relation to supporting delivery of active travel at a local level in the UK.

Evidence gap themes

- Effective interventions
- Reducing car usage
 - Road user charging
- Impacts of active travel
 - Long-term impacts
 - Health impacts
 - Economic impacts
 - Impacts on inequality
- Reducing inequalities
- Evaluation
- Infrastructure
- Political/social discourse
- Behaviour change
- Cargo bikes, e-scooters, cycle hire

Full list of suggested evidence gaps/questions

Effective interventions

- What are the minimum requirements for an active travel network? For example, would decent crossing count?
- What narrative works with which community to get an uptick in active travel
- Which are the highest impact schemes to group - e.g LTN and RPZ? Segregated cycle lanes and congestion charging?
- Which measures are most effective in increasing active travel to schools
- How do we stop easy to do, low impact, things happening?
- Review of active travel behavioural programmes (what works and what doesn't)
- Evidence gap on LTNs - the review in London to be completed in 2025 will help

Political/social discourse

- Does new research on the benefits of active travel being published effect public debate?
- Research to understand the role of politics in active travel through the lens of political discourse at the national, regional and local level
- How to influence the social status element of different transport modes (i.e. cars = high status)

Infrastructure

- UK evidence on how quality infrastructure (i.e. segregated cycle lanes) means more diverse group of people cycling (as in Netherlands)
- When does cycle infrastructure not work and why (i.e. Stevenage network)
- Consideration of international models such as Superblocks in Barcelona

Cycle modes

- More evidence on what can be done to increase cargo/e-cargo bike use by the public
- Cycle hire - use example from Marseille as evidence as linked to public transport where could hire on same app/card and get reduced cost/some free public transport
- How do design standards need to change to accommodate cargo bikes and new modes?

Evaluation

- What does Active Travel England think success would look like
- National evaluation of active travel infrastructure schemes is poor as detailed monitoring is only required for schemes over £xx. Cannot compare local schemes with other areas.
- Shared metrics - what are the key things we should all measure?
- Learning from Nottingham - especially on why they think other LA's haven't tried

Reducing inequalities

- What are the barriers faced by different groups which prevent them from adopting active travel as form of transport?
- How can we enable people on low incomes to cycle more?
- What measures have been successful in supporting lower sociodemographic groups to active travel? Financial support, subsidised active travel modes (cycle hire)

Impacts on inequality

- Impact on inequalities
- What are the impacts of active travel policies on health inequalities within different groups?

E-scooters

- E-scooters- who is using them and how to make safe
- Private e-scooters, there is research out there on the trials but little on private use in UK

Economic impacts of active travel

- What are the local economic impacts of active travel?
- Important for influencing national gov: economic justification for investing in active travel (i.e. impacts on economic productivity)
- An update on the economic spend of people using active travel vs car drivers

Behaviour change

- With the increase in delivery riders on bikes/ e-bikes there seems to be high numbers not using lights. Is there any data on that and how do we change behaviour?
- Do perceptions of road safety correlate with actual road safety levels? If not, how can you ensure that it does?

Reducing car usage

- Community knowledge of what would encourage residents/parents to use the car less
- Impact of increase in car leasing (vs ownership) on driving levels & mode share
- How many people have access to a car beyond their immediate household?

Health impacts of active travel

- Levels of public awareness about air pollution and impact of travel choices on air pollution
- What are the impacts of active travel on air quality?
- Longitudinal studies of health benefits of active travel

Long-term impact

- Longitudinal studies on the sustained impact of active travel policies over time
- How pilots relate to longer term plans?

Road user charging

- More polling/evidence of public support for road user charging - and what kinds of schemes
- Young people's view on traffic management and road user charging

Demand responsive travel in rural areas

Prioritisation


Following the generation of evidence gap ideas, participants were asked to vote on those that they felt were the most important. This was a rapid exercise, with not much time to assess all ideas.

The key result was that evidence questions addressing inequalities or differential impacts on different groups were the highest priority.









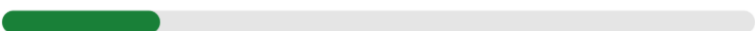
Post-workshop survey

Following the workshop, a list of 9 questions were formulated from the evidence gaps and priorities suggested during the session. These were then sent out via survey to all those invited to the workshop (including those who were unable to attend.) They were asked to rank the questions in order of the most important to the least important to contributing to local action on active travel, in their point of view. (Figure C 4). The prioritised questions were used to pick the final questions. Discussions with a stakeholder from OHID determined that reviews answering three of the four highest ranked questions (1,3,4) had already been commissioned. The three next highest ranked questions were then chosen as the final review questions (2,5,6).

Figure C 4: Follow-up question prioritisation survey.

 Please rank the following questions in order, with the most important ones (from your pov) at the top. This will help us to focus our efforts in the coming months. Thank you.

Ranking Poll  11 votes  11 participants

1. What is the best way to measure success after implementation of active travel interventions to assess modal shift? (e.g. key metrics to measure to effectively evaluate success/modal shift?)
 6.46
2. What are the local economic impacts of active travel interventions/shifts? (incl. what is the local economic spend of car users vs active travel users in the UK?)
 6.27
3. What do we know about if and how different socioeconomic groups are affected by key active travel interventions (including LTNs and active travel infrastructure)?
 6.18
4. What measures have been successful in supporting lower sociodemographic groups to take up active travel?
 5.46
5. What framing should Local Authorities use when discussing disincentives on car use (e.g. road user charge, re-prioritisation of parking spaces) to effectively communicate with the public?
 5
6. Do references to promoting active travel in planning policy result in an increase in active travel?
 4.73
7. What influences the local politics of active travel policy?
 4.54
8. What can prevent (known) low-impact interventions happening (at a regional/local authority level)?
 4.46
9. What interventions work to promote use of cargo bikes in cities?
 1.91

Sub Appendix C3: Active Travel Policy Longlist

Policy Aim	Policy Options	United Kingdom	Scotland	Wales	Northern Ireland	Climate Assembly UK	CCC	IPCC
Planning	Road space for active travel should be prioritised and this should be integrated into local strategies and policy documents		x					
	Developments should be directed to location which reduce the need to travel and are already well served by sustainable transport options.		x	x			x	x
	Require new school, housing and business developments have infrastructure for active travel & make sustainable transport the first choice for journeys	x	x	x	x		x	x
	Active travel (LA) network plans - cover defined areas, detailed infrastructure proposals (NI -behaviour change initiatives and campaigns, UK LCWIPs) - walking, wheeling, cycling & joined with public transport	x	x	x	x		x	
	Schools to have an Active travel plan/work with schools to promote AT	x		x				
	Localisation/ Sufficient density for walking/cycling (or 'mini hollands' UK)	x	x	x		x	x	x
	Amendments to legislation to ensure that the requirements of all users are appropriately taken into consideration in the planning and implementation of our active travel network		x					
	Greater use of existing planning powers allowing for the implementation of low carbon transport i.e. spatial planning.	x						
	Locate new public services such as education, health and leisure facilities close to where people live, and to existing public transport routes, adopting a Town Centre First approach							
	Avoiding transport lock-in to cars --> low carbon, highly accessible urban design favouring low carbon transit options							x
	Refocus existing transport policies to specifically draw out how land use planning can build in sustainable travel choices.		x					
Infrastructure	Use inclusive design principles in infrastructure projects to improve accessibility and safety for everyone		x	x			x	
	Train and develop professionals in best practice active travel design and guidance to ensure high quality infrastructure is put in place			x				
	Build comprehensive network for people cycling and walking for everyday journeys, making sure it connects where people want to go	x	x	x	x	x	x	x
	Ensure continuity of routes and linking of key destinations, encouraging people to travel safely on foot or by bicycle within and between settlements	x	x	x			x	x
	Create safe, traffic free, direct, continuous, comfortable walking and cycle routes through;	x	x	x	x	x	x	x

	Physically segregated routes (greenways, radial, quiet routes, separate cycle lanes)	x	x	x	x		x	x
	Providing cycle parking where required (including entry/departure points from public transport)	x	x	x	x	x	x	
	Low traffic neighbourhoods/closing roads to cars	x		x		x	x	x
	Reallocate road space/prioritise road space to active travel & public transport users	x	x	x		x		
	Incorporate AT opportunities into planned route/highway upgrades/repairs as well as new highways/main routes	x			x			
	School streets - slow traffic, widen pavements	x	x	x				
	Developing cycling hubs (areas with progression for cycle pathways and training)				x			
	Encourage public Bike Share Schemes	x	x	x	x			
	Improve National cycle network routes	x	x		x			
	Investment in maintenance of AT routes - Roads maintenance programmes are prioritised to facilitate active travel.	x	x					
	Ensure that tools which assess transport schemes' value for money give fair weight to the broader benefits of cycling schemes	x						
	Cycle storage			x				
	Sustainable investment hierarchy		x					
	Development and delivery of Active Freeways		x					
Support to ride	Providing cycle training (e.g schools, employers, adults)	x	x	x	x			
	Providing driver (including car, HGV, Taxi, Bus) cycle awareness training			x	x			
	Cycle to Work Schemes	x	x	x	x			x
	Promoting/support e-bikes usage (& e cargo bikes)	x	x	x	x	x	x	
	Do more to combat cycle theft	x						
	Building cycle facilities in towns with poor health	x						
	Improved cycle hire availability			x				
	Sustainable travel reward scheme	x						
	Improving access to bikes		x					
	Increase equity of access to cycles and cycling opportunities		x					
Facilitating Interchange between modes	Use of folding cycles				x			
	Carriage of cycles on public transport (trains/buses)	x			x			
	Make sure metro/rail stations have better access for all	x	x	x	x		x	

	Supporting integrated transport at ferry terminals		x					
	Network of integrated, multi-modal mobility hubs/active travel corridors	x	x	x			x	
	Integrated ticketing systems across transport modes where possible		x	x				
	improve bus/rail journey connectivity with walking, cycling and other modes of transport	x	x	x	x			x
	One network, one timetable, one ticket			x				
	Shared and rapid transit						x	
Highway Code/safety	Reducing speed limits - introducing 20mph speed zones	x	x	x	x		x (lower speeds)	
	Sustainable transport hierarchy & road user hierarchy -1) Pedestrians 2) Cyclists 3) Public Transport 4) Service Vehicles 5) Private Motor Vehicles	x	x	x	x			
	Cyclists must be treated as vehicles, not pedestrians & separated from pedestrians	x						
	Update Highway Code to protect vulnerable road users, and strengthen and improve safety for all road users	x			x			
	New road safety strategic framework	x						
	Act on pavement parking	x						
	Mandate higher safety standards on lorries	x						
	Lighting, active and natural surveillance of routes increases the perception of safety along pedestrian and cycle routes.		x	x				
Communication & Promotion	Clear + obvious network signposting	x	x		x			
	Promotional/information campaigns to increase awareness of benefits, to reframe narrative that it is cheaper to drive		x	x	x		x	
	Publications to give information to people about cycle use and cycle related activity				x			
	Events to promote cycling		x		x			
	Promote cycling for the carriage of freight, and work to reduce unnecessary motorised freight and servicing traffic	x						
	Work more closely with NHS, incentivising GPs to prescribe cycling	x						
	Develop a range of behaviour-change projects to encourage people to make smarter travel choices to reduce congestion and increase use of sustainable modes of transport			x				
	Behaviour change initiatives (community events, information & promotional activities, financial incentives)	x	x	x				
Local Authorities	Assessment of an authorities performance on active travel influence the funding it receives for other forms of transport. Reduce funding to	x						

	councils which do not take active travel seriously, particularly in urban areas.							
	Discourage the weakening or removal of schemes without proper evidence, and require full consultation that fairly reflects local views	x						
	New powers for local authorities (enforce traffic offences)	x						
	More power to metro mayors over the major roads in their areas	x						
	Work across government to allow some local authorities to pilot delivery of waste collection management schemes	x						
	Support LA to implement workplace parking levy		x					
Investing in Public Transport	Providing rapid, reliable, affordable public transport	x	x	x	x	x	x	
(broader policies)	Better, accurate information on transport options (timetable, running data, maps)	x	x	x	x			x
	Introduce smart and integrated ticketing	x		x	x			x
	The public transport system should be affordable for all or should be cheaper	x	x	x		x	x	
	Bus priority should be implemented to provide journey times comparable to those of a car wherever possible, and should be designed into major infrastructure and new development scheme	x	x			x	x	
	Demand Responsive Transport	x	x			x	x	x
	Adding new routes/increase in coverage and more frequent services	x		x	x	x		x
	Bring public transport back under government control/ give public sector control on the frequency and routing of bus services				x	x		
	Bus services will be simple to use, easier to understand, safe and integrated with other forms of transport, particularly rail and active travel			x				
	Bus services will be accessible, available and affordable to all members of society, regardless of their background			x				
	Significant investment in bus priority for key radial routes	x						
	Bus services should be better integrated with other modes of transport	x		x				
	Building extra capacity on rail network	x						
	Concessionary fares schemes to encourage a shift to public transport from car		x	x	x			x
	Transform the customer experience of public transport including reliability, punctuality and training for staff and drivers, so people are more confident about using services			x				
	Involve public transport users in the design of new services			x				

Roads, Streets and Parking	Address pavement parking		x	x				
	Policies on parking for all vehicle types to drive modal shift to public transport and active travel / Manage parking provision to effectively manage demand for car use	x	x	x				x
	Park and ride	x			x			
	Congestion charging	x						
	Emissions zones	x	x	x				
	Develop a framework for fair and equitable road-user charging			x				
	Workplace parking levies		x		x			
	Driving into urban centres should be discouraged where possible						x	
	Traffic calming measures/lower speeds						x	
	Explore policies to disincentivise car use			x			x	x